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A Comparative Study of Essential Oils Used in Papyrus Sterilization: A Case Study from the Early Islamic Period

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Abstract : The study was conducted on a papyrus housed at the Museum of Islamic Art in Cairo, Egypt. This papyrus was inscribed with black ink. Twelve fungal species were isolated and identified. Five types of fungi were ultimately identified to complete the study. The isolated fungi were then incubated for three months after the aging procedure. This study investigates the in-vitro growth inhibition of Aspergillus niger, Aspergillus flavus, Penicillium chrysogenum, Trichoderma longibrachiatum Rifai, and Paecilomyces variotii on papyrus. The hyphal growth was observed using the environmental scanning electron microscope (ESEM). Natural oils, such as lavender oil, lemongrass oil, and rosemary oil, were used. The impact of these natural oils on the newly aged papyrus was assessed using scanning electron microscopy and color analysis to identify the most effective oils for inhibiting fungus growth.

Keywords : conservation, papyrus, fungi, growth, environmental, essential oils
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